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Attention Disorders: The Advance Is a Return to Basics

ATTENTION DEFICIT/HYPERACTIVITY DISORDER (AD/HD), of which attention deficit disorder (ADD) may be a part, is a subject of much confusion and controversy. AD/HD is a constellation of behaviors that are thought to have biological origin. The condition is common, affecting 3 to 10% of elementary school-age children. In the last ten years, there has been a sharp increase in the prescription of stimulant medication for AD/HD, especially methylphenidate (Ritalin), raising questions about whether too many children are being diagnosed or whether these medications are being prescribed for conditions other than AD/HD.

AD/HD is defined by the presence of a significant number of inattentive and hyperactive-impulsive behaviors. *The Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM IV) lists 18 specific behaviors that indicate the presence of AD/HD. DSM IV describes three types of AD/HD: 1) inattentive, in which the child has at least six of nine inattentive behaviors but few hyperactive-impulsive behaviors; 2) hyperactive-impulsive, in which the child has at least six of nine hyperactive-impulsive behaviors but is not inattentive; and 3) combined, in which the child qualifies as both inattentive and hyperactive-impulsive (at least six of nine behaviors in each category). The combined type is seen most frequently, the inattentive type is often associated with learning disorders, and the hyperactive-impulsive type is uncommon.

The diagnosis of AD/HD is made primarily by history from parents and teachers, directly or through questionnaires; only well-standardized questionnaires should be used. A behavior is significant if it 1) is present and is more severe or occurs more frequently than in children of the same developmental age and 2) results in impairment of function in schoolwork or relationships with others. A physical examination should be performed to exclude conditions that mimic AD/HD (hyperthyroidism, neurologic disorders) or that exacerbate AD/HD (chronic illnesses, sensory disorders). Since laboratory studies cannot make or rule out a diagnosis of AD/HD, they should be obtained only to confirm or rule out a suspected medical or neurologic disorder. Since learning disabilities frequently accompany or mimic AD/HD, formal psychometric and educational assessments should be considered.

The differential diagnosis of AD/HD includes learning disabilities, speech and language disorders, pervasive developmental disorders (autism), and mental retardation. Behavioral disorders (opposition/defiance, conduct, anxiety, mood) also frequently co-exist with AD/HD and should be considered.

Once the diagnosis of AD/HD is confirmed, stimulant

medication, alone or in combination with psychological therapies, is by far the most effective treatment, proving helpful in 60–90% of children with AD/HD. The most well-studied of the stimulant medications are methylphenidate (Ritalin), dextroamphetamine (Dexedrine), and pemoline (Cylert). Methylphenidate and dextroamphetamine are available in short- and long-acting forms. For a single, short-acting dose of methylphenidate, 0.3 mg/kg is administered minimally, up to 1 mg/kg maximally. The recommended dosage for the long-acting form of methylphenidate (RitalinSR) starts at 0.9 mg/kg/day, which can be supplemented with a late afternoon dose of short-acting methylphenidate, up to a maximum dose of 3.0 mg/kg/day. Dextroamphetamine is effective at one-half of the methylphenidate dose (0.15 to 0.5 mg/kg for a single, short-acting dose, and 0.45 to 1.5 mg/kg/day of the spansule form for a total per-day dose).

There is considerable variation in metabolism of these medications. Tolerance, indicated by a recurrence of AD/HD symptoms despite treatment, occurs almost universally, requiring increases in dosage over time and as the child grows. In such circumstances, the dose should be increased by at least half of the starting dose until a beneficial effect is seen. Methylphenidate and dextroamphetamine are safe and non-addictive when used in the above dose ranges for AD/HD. Side effects, especially appetite loss and difficulty falling asleep, occur frequently and can be helped by adjusting drug dosage and timing. A “zombie-like” state always indicates too high a dose; Tourette’s syndrome is an uncommon effect that may or may not require discontinuance of medication. Pemoline is a central nervous system stimulant with a dosage ranging from 37.5 to 150 mg daily. Because pemoline has recently been reported to cause liver failure in a few patients, its use has come into question. When a sustained and sophisticated trial of stimulants is not effective, other medications may be used. Only thioridazine (Mellaril) has been shown to be effective, but it has serious side effects and should be used only under special circumstances such as significant growth failure or mental retardation plus AD/HD. Anti-depressants and clonidine are popular but have little research to support their use.

Psychological therapies are often helpful adjuncts to medication. Patients and families should be educated about AD/HD. Patients should receive appropriate and supportive discipline at home and at school. Intensive psychological therapies are of limited benefit, but in individual cases three modalities may be beneficial: 1) individual psychotherapy, especially as the patient approaches adolescence or adulthood; 2) family therapy, focusing on transactional issues such as family rules and limit setting; and 3) group therapy, such as social skills training or cognitive behavioral therapy that addresses self-control issues.

The outcome of AD/HD in adolescence and adulthood has been studied extensively. AD/HD disappears completely in only 20% of those diagnosed in childhood. The remaining 80% continue to have characteristics of AD/HD but with varying outcomes. About half of those who continue to have characteristics of AD/HD do rela-

tively well once they get past formal schooling and move into the workplace. The other 50% have outcomes ranging from dysfunctional problems (continuing underachievement, instability of relationships) to serious psychiatric problems (psychopathic personality disorder, substance abuse).

Because AD/HD is common and the outcome is not benign, consultation with specialists is important when children do not respond to treatment. Further research on medications other than stimulants is urgently needed.

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